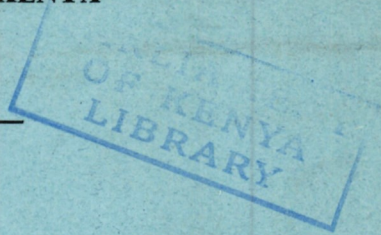


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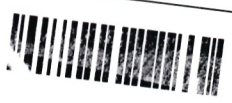
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in pocket

SURVEY OF KENYA ANNUAL REPORT 1966

1. REVIEW OF THE YEAR

The main activities of the Department continued unchanged: that is, the making of accurate surveys of land boundaries and production of large-scale plans for registration of land titles; the production and revision of topographical maps in a full range of scales, for use in administration, defence, tourism, education, development planning, etc. and activities connected with the above, for example, aerial photography, technician training, etc.

The retirement of expatriates from the permanent staff continued and several new appointments and promotions of Kenya citizens were made. The shortage of qualified surveyors and certain other technical staff continues to be partly met by appointments (on 2½-year contracts) from countries other than Britain.

Internal and external training continued, including ten students reading for R.I.C.S. examinations at Waltham Forest Technical College (England), two for B.Sc. (Land Survey) at the University of New Brunswick (Canada), and two at the International Training Centre for Photogrammetry (Netherlands).

The totals of the Departmental expenditure and revenue estimates for 1966-67 were very slightly lower than in 1965-66.

The East African Land Survey Certificate Act became law and the Director (as an ex-officio member) attended the first meeting of the Board in July, when draft Regulations were considered.

The general increase in economic activity throughout Kenya was reflected in an increase in cadastral surveys required to support land title transactions. The Lamu District Survey Office was reopened, after a lapse of forty years.

The output of base mapping for planning Settlement Schemes declined in proportion to the rate of purchase of new land for settlement; survey effort in this field switched increasingly to the preparation of Registry Index maps to support the Register of Titles to plots in the Settlement Areas. Discussions were held with the Van Arkadie Mission on Land Settlement and with the Lawrance Mission on Land Adjudication.

The demand for boundary maps of various kinds continued; a set of maps showing the new Parliamentary Constituency boundaries was in hand for publication early in 1967.

Under British Technical Aid to Kenya, the average strength of the Directorate of Overseas Surveys field party in Kenya was raised from four to six; the party continued to observe new control points required for contouring existing 1:50,000 maps and for plotting large-scale plans of proposed land adjudication areas. D.O.S. also completed and published the last sheets of the 1:50,000 basic mapping areas of Kenya, and have in hand the last eleven sheets of the 1:100,000 basic mapping area (that is, the undeveloped northern and eastern parts of Kenya).

Survey of Kenya continued to produce revised editions of the basic mapping and also many smaller-scale maps. In the series of National Parks and Game Reserves maps, Nairobi and Meru National Parks have been published, while Masai-Mara is in hand. Work started on a new edition of the national atlas.

A high proportion of Departmental effort continued to be devoted to aerial photography, base mapping, and title plans in support of the Government's accelerated Land Titles Adjudication Programme, following the report of the Lawrance Mission.

The Department sent a delegation to the United Nations Economic Commission for Africa Second Regional Cartographic Conference held at Tunis in September.

In presenting this Report, I wish to take the opportunity of paying tribute to the continued support and loyal service of all grades of the staff of the Department.

P. P. ANYUMBA,
Director of Surveys.

2. ADMINISTRATION

General

The Department remained in the portfolio of the Minister for Lands and Settlement during 1966.

Four Provincial Survey Offices were maintained in Mombasa, Nyeri, Nakuru and Kisumu, and ten District Survey Offices in other towns.

The heads of the three East African Survey Departments continued their regular conferences, meeting at Nairobi in July. At the same time they held their first meeting as the ex-officio members of the newly formed East African Land Survey Examinations Board.

At the invitation of the Indian Government, the Director visited Survey of India in August, to interview candidates for secondment to Kenya. In September he made liaison visits to Survey Departments in Nigeria, Ghana, Sierra Leone, Gambia, and Senegal en route to the U.N. Cartographic Conference in Tunis. After the Conference, at the invitation of the West German Government, he was one of a party of Heads of African Survey Departments which toured various survey organizations in West Germany and Berlin.

The many visitors to the Department during the year included:—

Mr. W. D. C. Wiggins, O.B.E., Director of Overseas Surveys.

Mr. K. G. Ashton, Overseas Development Ministry (Technical Appointments Section).

Prof. E. H. Thompson, O.B.E., London University.

Mr. J. P. Leonard, Ministry of Lands, Mauritius.

Mr. B. E. Furnston, Survey Department, Malawi.

A party from Lands and Town Planning Department, Zambia.

Major Zante, U.S. Mapping Mission, Ethiopia.

Dr. Hans Hecklau, Geography Department, Berlin Free University.

Mr. J. Reinders, German Volunteer Service.

Mr. G. Szadeczky-Kardoss, Geodetic Research Institute, Hungary.

Mr. R. C. Hodges, Regional Director, Department of Forests, Canada.

Mr. F. E. Shafer, Regional Geographic Attache, U.S. Department of State.

Mr. W. F. Evans, Federal Housing Administration, U.S.A.

Dr. E. de Benko, Librarian, Michigan State University.

Dr. L. W. Morley,

Dr. P. O. Fagerholm,

Dr. Telou Tchang,

} investigating possible sites for the U.N. Joint Training Centre for Survey and Photogrammetry.

The Van Arkadie Mission on Land Settlement.

The Lawrance Mission on Land Adjudication.

Establishment

The Kenyanization of the Department continued. Seven more officers on overseas terms of service retired from the pensionable establishment.

However, there is still a shortage of fully qualified surveyors, and it is expected that more Staff Surveyors on contract terms will arrive from Norway and Yugoslavia early in 1967.

One African Staff Surveyor and one Computer were appointed on return from training in England, one resigned, and two were posted as Provincial Surveyors. (see also section 7, Training).

One African Photo-Lithographer, Grade I, was transferred on promotion to the Government Press, and one was discharged.

One Canadian Aid photographic expert had his assignment extended by the Canadian Government.

A cartographic expert was appointed by the New Zealand Government under the S.C.A.A.P. Aid Agreements to edit a new edition of the Kenya Atlas; unfortunately, he had to resign his appointment after three months.

One Danish and three German volunteers arrived and were posted to various duties in Survey, Computing, Photogrammetry and Records.

The approved establishment, and vacancy position, at the end of the year is shown in Table E.1. Appointments, promotions, and retirements during the year are shown in Table E.2.

TABLE E.1

<i>Post</i>	<i>Establishment at 31st December 1966</i>	<i>Vacancies</i>
Director of Surveys	1	—
Assistant Director of Surveys	3	—
Superintendent of Surveys	3	1
Executive Staff	9	3
Clerical Typing and Analogous Staff	24	—
Records Officer, Grade I	1	—
Records Officer, Grade II	2	1
Records Officer, Grade III/Junior Records Officer, Grade I and II	13	—
Artisans	3	—
SURVEY FIELD STAFF		
Staff Surveyors	26	10
Computers	1	—
Assistant Surveyors/Survey Assistants, Grade I ..	30	14 (a)
Survey Assistants, Grade II	12	—
Survey Assistants Grade III/Junior Survey Assistants	75	14
Survey Plan Examiners	3	3
Drivers	71	—
Subordinate Staff	350	—
CARTOGRAPHIC AND REPRODUCTION STAFF		
Chief Cartographer	1	—
Superintendent (Reproduction)	1	—
Senior Cartographer	1	—
Cartographers, Grade I	8	—
Cartographers, Grade I (Supernumerary)	1	—
Cartographers, Grade II	15	1
Cartographers, Grade III/Junior Cartographers ..	81	5
Photo-Lithographers, Grade I	2	1 (b)
Photo-Lithographers, Grade II	3	—
Photo-Lithographers, Grade III/Junior Photo- Lithographers	18	—
AIR SURVEY STAFF		
Senior Photogrammetrists	3	3 (c)
Photogrammetrists, Grade I	5	—
Photogrammetrists, Grade II	10	3

Notes.—(a) Fourteen Survey Assistants, Grade II, held against these vacancies. (b) One Photo-Lithographers, Grade II, held against this vacancy. (c) Three Photogrammetrists, Grade I, held against these vacancies.

TABLE E.2

	<i>New Appointments</i>	<i>Promotions</i>	<i>Resignations, Retirements, Transfers</i>
Superintendent of Surveys	—	1	—
Staff Surveyors	1	1	2
Computers	1	—	—
Assistant Surveyors	1	—	—
Survey Assistants, Grade I	—	3	—
Survey Assistants, Grade II	—	8	2
Survey Assistants, Grade III	—	8	2
Junior Survey Assistants	33	—	17
Cartographers, Grade I	—	2	—
Cartographers, Grade II	—	10	1
Cartographers, Grade II	1	6	2
Junior Cartographers	23	—	12
Photo-Lithographers, Grade I	—	—	2
Photo-Lithographers, Grade II	—	2	1
Photo-Lithographers, Grade III	—	1	—
Junior Photo-Lithographers	1	—	—
Photogrammetrist, Grade I	—	1	—
Photogrammetrist, Grade II	—	2	1
Junior Records Officer, Grade I	—	3	—
Executive Staff	—	1	4
Clerical and Typing Staff	4	3	6
Drivers	1	4	1

Finance

K£200,000 was provided from Development Funds for Land Adjudication Surveys, and K£35,000 was provided by the Settlement Fund Trustees for base mapping required for planning the Settlement Areas.

Comparative figures for the two relevant financial years are given in Table F.1:—

TABLE F.1

	1965—66 <i>Approved Estimates</i>	1965—66 <i>Actual Expenditure</i>	1966—67 <i>Estimates</i>
	K£	K£	K£
Expenditure			
Personal Emoluments	272,000	273,677	265,000
Other Charges	112,100	111,193	104,009
TOTAL	384,100	384,870	379,900
	1965—66 <i>Approved Estimates</i>	1965—66 <i>Amount Realized</i>	1966—67 <i>Estimates</i>
	K£	K£	K£
Appropriations in Aid			
Development Grants	238,000	230,518	235,000
Survey Fees, Sale of Maps, etc.	25,500	22,438	26,000
TOTAL	263,500	252,956	261,000

Buildings

A block of subordinate staff flats costing £5,000 was completed at Mombasa.

The foundation stone of the new Ministry of Works building in Nairobi (of which three floors will be occupied by Survey of Kenya Headquarters) was laid by H. E. the President on 12th May 1966. Completion is expected in 1968.

Labour

The labour force serving the Department averaged 500, inclusive of 160 casual labour, mainly employed on field duties. This shows a marked increase over the figures for 1965-66, and is due to a proportionate increase in field survey work. Three members of the subordinate service retired, and one died of illness, during the year.

Stores

The total value of stores held on department ledger charge approximates £1,250,000. New items to a value of £6,500 were purchased and taken on charge in 1966. The total number of Inventory Holders is 160, for a total of 5,759 Inventory Items held. Stores transactions in 1966 totalled 5,400. Unserviceable Stores sold by Public Auction realized £640. The initial value of Stores Written-off due to losses, etc. amounted to only £143, with a recovery of £32 to Public Funds. This is a decrease of £76 compared with 1965 figures.

Transport

The transport fleet was augmented by the purchase of three Austin "Mini Mokes" as an interim measure to assist in the provision of extra transport required for field duty, this type of vehicle having a good cross-country performance. The total transport mileage for 1966 shows an increase of 80,000 miles compared with 1965.

3. LAND SURVEYORS BOARD

The Board continued to fulfil its statutory functions in control of the private land surveying profession in Kenya, including the examination of candidates for admission to the profession.

Membership comprises two Government surveyors, nominated by the Minister for Lands, and two in private practice, nominated by the Association of Land Surveyors, under the Chairmanship of the Director.

Five meetings were held during the year and no licences were awarded.

In the 1966 examination there were five candidates (three Intermediate and two Final). One candidate became eligible to take the Trial Survey and the remainder obtained partial passes.

At the end of the year there were 22 registered Licensed Surveyors in Kenya: six in private practice, seven in Survey of Kenya, one in University College, six in other organizations, two in retirement.

The East African Land Survey Certificate Act 1965, was gazetted to be operative from the 1st April 1966, and the Board set up by the Act duly met for the first time in July to draft regulations, etc. It is expected that Territorial Boards will consider amendments to legislation so that the E.A.L.S.C. examinations can be accepted in lieu of national licence examinations.

4. CADASTRAL BRANCH

General

The demand for cadastral surveys for title continued unabated throughout 1966. There was a marked increase for surveys in the private sector reflecting the upsurge in economic activity throughout the country.

Cadastral Surveys

The number of surveys examined showed an increase of nearly 25 per cent over 1965; this substantially reduced the backlog of surveys awaiting examination. In December the Checking Section was in the unique position of being able to attend to surveys almost on submission. The Lamu District Office was reopened after an interval of nearly 40 years in response to the desire for land titles in the district. Field staff were occupied throughout the country on title surveys to be registered under either the Registered Land Act or the Registration of Title Act.

Settlement Mapping

In July the Branch took over the responsibility for supplying the Director of Settlement with Topographical Base Mapping. An area of 21,000 acres at 1:2,500 scale with 5 ft. V.I. contours was produced. A start was made late in the year on production of Title Mapping under the Registered Land Act for Settlement Schemes. Circumstances beyond our control have delayed the publication of nearly 40,000 acres of Registry Index Maps.

Several discussions on the subject of survey problems in Settlement Schemes were held with the members of the Van Arkadie Mission on Land Settlement. In its Report published in October 1966, were recommendations supporting the established procedures and policies of the Survey of Kenya, including confirmation that the use of an accurate map for registration purposes is essential.

TABLE C.1—SURVEYS FOR TITLE IN 1966

Category	Farm and Farm Subdivisions		Township and Residential		Miscellaneous		Total	
	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres
Government	85	12,315	504	1,431	2	3,026	591	16,777
Private ..	130	36,872	326	1,876	—	—	456	38,748
Settlement Scheme Surveys ..	431	5,296	2,042	860	—	—	2,473	6,150
TOTALS ..	646	54,483	2,872	4,167	2	3,026	3,520	61,676

Computing and Checking

TABLE C.2

	No.	Man-days
Survey jobs examined and approved	480	1,675
Plans compiled	197	342
Survey data issued for field jobs	205	124
Comments on subdivision schemes	360	71
Set of Deed Plans examined and signed	1,330	135

The average number of staff employed in the Checking Section was:—

Staff Surveyors	5
Survey Assistants	1
Assistant Surveyors	1
Plan Examiners (Cartographers)	2

Boundaries and Cadastral Fair Drawing Office

This Drawing Office consists of two sections, the Boundaries Section and the Cadastral Fair Drawing Section.

(a) *Boundaries Section*

There were four cartographers in this section engaged in the preparation of Boundary Plans and drafting of boundary schedules, checking of Boundary Plans and schedules from the Forest Department, checking of administrative boundaries on maps for revision of 1:50,000 and 1:250,000 scale topographical maps, colouring of Boundary Plan prints and miscellaneous drawing jobs. The analysis of work in this section during 1966 is given in Table C.3.

TABLE C.3

Boundary plans prepared	23
Boundary schedules drafted and checked	22
Forest boundary plans checked	10
Administrative boundaries checked on topo maps	62
Colouring of new boundary plan prints	134
Colouring (maps and prints) others	122
Miscellaneous drawing jobs	36

(b) *Cadastral Fair Drawing Section*

There were six cartographers in this section engaged in Registry Index Mapping at a scale of 1:50,000 (Series SK.49) of rural areas, 1:10,000 (Series SK.21) of Settlement Schemes, 1:2,500 (Series SK.50) of Settlement Scheme towns and 1:2,500 (Series SK.64) of Nairobi Blocks. During the year, sheet 5 "Mombasa", in Kenya Cadastral (Index) Series SK.43 (1:250,000) was prepared. Cadastral boundaries of two areas of Nairobi City Council were plotted on 1:5,000 scale machine-plots which involved 49 astrafoil reversal plates. The analysis of work in this section during 1966 is given in Table C.4.

TABLE C.4—REGISTRY INDEX MAPPING

Scale		No. of Sheets
1: 50,000	(Series SK.49)	8
1: 10,000	(Series SK.21) (two schemes)	4
1: 2,500	(Series SK.50) (eighteen towns)	29
1: 2,500	(Series SK.64) Nairobi Blocks	25
1:250,000	Kenya Cadastral (Index) Sheet 5	1
Miscellaneous jobs including plotting of cadastral boundaries on machine plots		50

Records Drawing Office

The staff of the Records Drawing Office again averaged 15 cartographers. Experience in the previous year of staff movement between the three sections (Cadastral Fair Drawing, Boundaries, and Records Drawing) proved quite satisfactory, and the cartographers concerned have not only improved their own chances of passing the annual Occupational Tests, but have also improved production. This internal movement of staff has also been supplemented by transfers of staff to and from other drawing offices within the Department.

The work of this office was similar to that of the previous year and Table C.5 gives the analysis of the work done.

TABLE C.5

Subdivisional plans	91
Special plans	75
Tracings	422
Deed plans compiled	435
Plans checked	1,317
Plans charted	2,884
Miscellaneous	904

Survey Records Office

This office continued to be responsible for the custody, indexing and referencing of original survey plans, tracings, deed plans, etc., relating to all surveys under the Registration of Titles Act and an increasing number under the Registered Land Act. It also supplied dyeline prints of such plans.

TABLE C.6

Transactions during:—	1965	1966
Survey plans outstanding	8	—
Survey plans received	430	373
Survey plans registered	438	373
Survey plans awaiting registration	—	—
Miscellaneous surveys (without plans) received ..	71	63
Miscellaneous surveys (without plans) registered	71	63
Resubmissions received	3	—
Resubmission registered	3	—
Deed plans numbered	740	673
Deed plans received	862	818
Deed plans signed	858	804
Deed plans despatched	961	819
Township layout plans registered	76	82
Approved subdivisional schemes	59	137
Prints issued	14,385	13,823
Miscellaneous jobs	114	75

TABLE C.7—NEW CADASTRAL SURVEYS REGISTERED IN 1966

DESCRIPTION	BY GOVERNMENT		BY PRIVATE SURVEYORS		TOTAL	
	Parcels	Acres	Parcels	Acres	Parcels	Acres
Farms—New alienations	45	1,123	30	23,149	75	24,272
Farms—Subdivisions ..	40	11,192	100	13,723	140	24,915
Township Plots—New ..	499	1,429	59	1,640	558	3,069
Township Plots—Subdivisions	5	2	267	236	272	238
Resurveys and revisions ..	2	3,026	—	—	2	3,026
Trig. and Standard Traverse Charts*	12	—	5	—	17	—
Settlement Scheme Surveys						
Farms	431	5,296	—	—	431	5,296
Towns	2,042	860	—	—	2,042	860
Conversions—(Compiled Plans)*	1	1,682*	—	—	1	(1,682)
Miscellaneous Compiled Plans	39	—	18	—	57	—
TOTALS ..	3,116	22,298	479	38,748	3,595	61,676

*The area of 1,682 acres (Conversion Compilations) has not been included in the total of 61,676 acres. Triangulation and Standard Traverse Charts are included in the total number of surveys.

5. MAPPING AND TECHNICAL BRANCH

Triangulation and Traversing

The Kenya party of the Directorate of Overseas Surveys continued on the fixation of a secondary net covering the Masai District. On completion of the field work the fixation was continued eastwards into Machakos and Kitui Districts.

During the year the party carried out altimetry for contouring control in the Nyanza-Kericho area and the Kilibasi area.

Departmental surveyors completed a number of Tellurometer and Triangulation schemes for control of Adjudication and Settlement air-photo mapping.

Reconnaissance and observing of a Tertiary breakdown in South Nyanza District was undertaken and nearly completed.

Geodetic Levelling

The levelling party completed the circuit from Kisumu via Buteba, Tororo, Eldoret to Mau Summit, but on reduction a gross error was found which necessitated further levelling which has not yet been completed.

The Mombasa-Tanzania border line was also levelled during the year.

Mapping

Contouring: It was found that the photography of the Nyanza-Kericho area from which contours were to be plotted was not up to mapping standards, and the project had to be temporarily abandoned pending new photography to be taken in 1967.

Basic Mapping: The remaining seventeen sheets of the 1:50,000 series of the Tana Basin east of Meru were received from the D.O.S. This now completes the 1:50,000 mapping of the settled parts of Kenya. The area to the east of this block was completed during the year by the delivery of the remaining three 1:100,000 sheets.

The D.O.S. continued with the compilation of the Turkana Block of 1:100,000 mapping, and pencil compilations are expected early in 1967. This is the only area of Kenya outstanding in the basic medium scale topographic mapping programme.

Revised Mapping: 1:50,000 scale (Series Y731): new editions were published of 21 sheets.

Thirty-six sheets of the SK.61 series, a violet overprint on the 1:50,000 scale (Series Y.731) showing boundaries of administrative districts, divisions, locations and sub-locations were printed.

Popular Mapping: A map of Meru Game Reserve (now National Park) was published in a new series (SK.65) of Game Park maps. The scale is 1:100,000.

A third edition of Nairobi (SK.46) 1:20,000 scale was published.

A special overprint on the oblique map of East Africa was published to show the route and control points for the 1966 East African Safari Rally.

Small-scale Mapping: Series SK.60, a violet overprint on the 1:250,000 scale (Series Y.503) showing boundaries of administrative provinces and districts was completed.

A compilation of sheet SA-37 of the International World Map scale 1:1,000,000 (Series 1301) was received from D.O.S. for checking late in the year. Sheet NA-37 will follow.

Atlas: Work started on a new edition of the Atlas of Kenya for publication in 1968.

Special Mapping: Maps covering the Nzoia Pilot Irrigation Project, Mumias soil survey, and Ahero Pilot scheme, were prepared and printed.

A map showing proposed economic development of Kenya was printed for the Office of the President.

Map Catalogue: A 1966 edition was published.

Map Exchange Agreements with Tanzania, Uganda, and Great Britain continued to operate usefully.

Photo-Lithography Section

Although staffing difficulties affected this section during the year, the general level of production was maintained; see Table R.1.

Other than the Superintendent, the last expatriate (a Photo-Lithographer, Grade I) in the section retired in July. Out of the three students who returned from a three-year course in Photo-Lithography at the Twickenham College of Technology, one gained a Silver Medal for his results in the City and Guilds Examination and was almost immediately promoted to the Government Press. Only one of the other two students remains in the section (as a Photo-Lithographer, Grade I).

A Mono-photo letter-set machine was installed so that type can be set with greater speed and clarity.

The Canadian Government gave two rotary Photographic Print Washers to the Department and the use of these has considerably speeded up the production of aerial photographic prints besides giving a clearer and more permanent print.

The Departmental evening classes in Photo-Lithography have had to be terminated due to the transfer on promotion of the instructor.

TABLE R.1—COMPARATIVE PRODUCTION

	1964	1965	1966
<i>Studio:</i>			
Film, negative and contacts	1,832	1,639	2,755
Bromide contacts	25,634	27,789	25,240
Diapositives	1,292	2,345	877
Bromide enlargements	967	794	2,620
Photostat copies	11,859	9,404	12,798
Hohlux and monophoto type	184	234	182
Dyeline prints	33,881	28,612	22,887
Autopositive	1,567	448	586
<i>Printing Down:</i>			
Machine plates	601	497	825
Astrafoils	1,757	1,809	2,703
<i>Press Room:</i>			
Sheets of type	335	432	586
Printing Orders	141	—	208
Colour Impressions	1,442,580	1,843,110	1,536,706
Gestetner and Rotaprint	—	46,400	—
Gestetner only	—	—	122,458
Dufa press	—	—	6,349

Map Sales and Issues

During 1966 the sale of publications earned £9,804 as shown in Table F.2.

TABLE F.2

	<i>Survey Headquarters</i>	<i>Field Headquarters</i>	<i>Public Map Office</i>
	K£	K£	K£
Topographical maps	—	—	4,538
Cadastral maps	—	—	216
Atlases	—	6	167
Dyeline prints	384	416	28
Photostat copies	—	38	—
Air photographs	—	588	—
Enlargements	—	1,698	—
Survey Manuals	—	23	—
Miscellaneous	—	1,688	14
TOTALS	K£384	4,457	4,963

The value of documents issued free to Government Departments (including Survey of Kenya) is shown in Table F.3:—

	K£
Topographical maps	6,960
Cadastral maps	280
Dyeline prints	5,290
Photostat copies	550
Air Photographs	7,000
Enlargements	3,200
Miscellaneous	20
TOTAL	K£23,300

Aerial Photography

During the year a local air charter firm, Safari Air Services, fitted out a Cessna Skyknight for aerial photography which provided an alternative to the D.C.A. Dakota when that was engaged on civil aviation work.

Large-scale photography for use by the Survey of Kenya and other Kenya Government Departments was obtained during 71 sorties giving a total of 246 flying hours. The areas photographed were as follows:—

For Settlement Schemes Title Surveys

Ol Aragwai, Mweiga, Muhoroni (God Abuoro), Naro Moru/ Island Farms, Sagana/Chieni.

For Adjudication (P.I.D.'s and Base Mapping)

Kisii District, Central Nyanza (Sakwa, Samia, Ugenya/Alego), Bungoma/ Busia (Malakisi-Teso), Kakamega (Maseno, Mwikalecha).

For Settlement Schemes Base Mapping

Subukia Escarpment, Cherangani.

For Ministry of Works

Roads: Kibwezi/Kitui, Thika/Kitui, Mile 80/Kalanga, Timau/Lewa, Nandi Hills/Kapsabet, Kijabe/Narok, Sotik Post/Narok, Nandi/Songhor, Jamji/Sotik, Ugunja/Bomala, Homa Bay/Kamagambo. Mambasa Airport, Wilson Airport and Nambariswari River.

For Forest Department

Homa and Gwasi Forests.

For East African Railways and Harbours Administration

Ulu/Selengai proposed alignment, Nairobi Station Yard.

For Town Planning, etc.

Nairobi City.

Air Survey

Mapping of the following was carried out by the Air Survey Section during the year:—

Settlement Schemes, etc. (topographical mapping at 1:2,500)

31,000 acres covering Subukia Escarpment, Burnt Forest and Cherangani.

Settlement Schemes (cadastral mapping at 1:2,500)

18,000 acres covering Tamu, God Abuoro and Mweiga.

Trust Lands (cadastral mapping at 1:2,500)

211,000 acres covering Fort Hall (Locations 3 and 16), Ndivisi, Kibirichia, South Tetu/Mathira/Ndia and Esageri.

Adjudication (topographical mapping at 1:5,000)

269,000 acres covering Loitokitok, Chepterwoi and Nyambeni.

Towns (topographical mapping at 1:2,500 and 1:5,000)

The following Towns were mapped: Thomson's Falls, Kendu Bay, Bungoma, Elburgon, Marsabit and part of Mombasa.

Special Purposes (topographical mapping)

1:10,000 mapping of Kibwezi/Kitui Road, 1:7,500 mapping of Ulu/Selengai proposed railway, 1:2,500 mapping of 27,000 acres for Chemelil Sugar Scheme.

Computing Office and Records

The use of electronic computer facilities in Nairobi continued to increase during the year as more programmes were tested and put into use.

Calibration of measuring bands and geodetic levelling staves continued throughout the year.

6. ADJUDICATION BRANCH

This Branch was formerly responsible for all land consolidation mapping and for topographical base-mapping in the Settlement Schemes. Now that little base-mapping remains to be done in the Settlement Schemes, responsibility for the remainder was handed over to the Cadastral Branch, which has always been responsible for title mapping in these schemes.

The Lawrance Mission, which was appointed to advise the Government on an accelerated programme of land consolidation and registration, recommended that the Land Consolidation Department should be renamed the Adjudication Department, and this Branch (of the Survey of Kenya) which now only deals with land which is being or has been adjudicated, has also adopted the new title.

Although the Government's study of the Lawrance Mission's Report had not been completed by the end of the year, this Department had started to implement some of the recommendations, notably the recommendation that the registration diagrams produced by the Land Consolidation Department from photographs at 1:12,500 scale, should be redone at a scale of 1:2,500 or 1:5,000.

The Department submitted many memoranda to the Lawrance Mission and had a number of meetings with its members. Mr. Lawrance, Col. Humphreys, Mr. Simpson, and Mr. MacArthur of the Mission visited the Department.

Adjudication Surveys and Mapping

(i) *Mapping*.—Maps for Land Adjudication (and a Development Scheme) were produced as follows:—

(a) *Topographical Base Maps*. (Since the start of base-mapping in 1955 over 4,000 miles have been completed):—

Province	District	Location	Scale	Sheets	Acres
Eastern ..	Meru ..	Nyambeni	1:2,500	127	47,006
Rift Valley ..	Nandi ..	Chepterwoi	„	109	42,231
Rift Valley ..	Kajiado ..	Loitokitok	„	57	128,813
Nyanza ..	C. Nyanza ..	Chemelil Sugar Scheme	„	47	27,662

(b) *Demarcation Maps*:

Central ..	Fort Hall ..	—	1:2,500	289	57,283
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(c) *Cadastral Maps at 1:2,500 scale*. (Since the start of final registration mapping in 1960 over 1,000 sq. miles have been completed):

Province	District	Location	Sub-Loc.	Sheets	Parcels	Acres
Central ..	Nyeri ..	Mathira ..	7	86	3,962	17,074
„	Fort Hall ..	2, 3, 16 ..	8	192	2,498	23,057
„	Kirinyaga ..	—	20	256	8,186	47,361
„	Meru ..	Kibirich'a ..	3	79	1,538	20,998
„	Kiambu ..	—	29 Towns	—	10,494	2,833
Western ..	Bungoma ..	Ndivisi ..	1	42	1,048	14,124
Nyanza ..	Kisii ..	Keumbu ..	1	27	1,071	7,015

(ii) *Preliminary Photography*.—Photography of this type is used by the Land Consolidation Department for preliminary field work (enclosures, record of existing rights, etc.) and for the preparation of Adjudication Registers. Formerly the contact prints at 1:12,500 scale were used, but latterly most of the work is done on enlargements.

(a) *Flying*: An area of some 1,900 sq. miles, mainly in Nyanza and Western Provinces, was photographed.

(b) *Enlargements*: These were supplied to the Land Consolidation Department as follows:—

<i>District</i>	<i>Sub- Locations</i>	<i>Scale</i>	<i>Aprox. No. of Enlargements</i>	<i>Acres</i>
Kakamega	22	1:2,500	220	75,660
Kakamega	4	1:5,000	50	33,870
Bungoma	3	1:2,500	103	35,190
Bungoma	14	1:5,000	250	212,170
Busia	11	1:5,000	100	78,530
Kisii	8	1:2,500	294	85,060
Kisii	2	1:5,000	32	16,840
Kisumu	1	1:2,500	19	2,050
Kisumu	1	1:2,500	19	2,050

(c) *Preliminary Index Diagrams (P.I.D.)*: After field recording of boundaries, allocation of parcel numbers, etc., has been completed, a tracing of these is made from the enlargement and used as an interim registration plan. Survey of Kenya prepared P.I.D.'s as follows:—

<i>District</i>	<i>Sublocation</i>	<i>P.I.D.s</i>	<i>Acres</i>
Kakamega ..	Ebubayi	10	1,620
„	Bukara	19	6,950
„	Inaya	12	3,110
„	Shiraha	18	4,700
„	Buchenya	16	3,750
„	Mundobelwa	17	4,230
„	Wambulisha	16	3,580
„	Shikunga	17	4,100
Bungoma ..	Kamakuywa	40	11,550
„	Kimilili	52	10,300
Kisumu ..	East Kadianga	38	10,390
„	West Kadianga	36	9,500

(iii) *Field Work*: The main tasks of officers in the field have continued to be triangulation, the provision of premaking of ground control for air photography, dealing with queries brought to light by the re-fly, and the preparation of Registry maps at a scale of 1:2,500 (where previously produced at 1:12,500 by the Land Consolidation Department). Field parties also carried out the following work within the Trust lands:—

- (a) Cadastral surveys of townships and villages.
- (b) Mutations in those areas where final cadastral maps have been published.
- (c) Boundary surveys: Sublocation boundary surveys, Taita; Kindaruma compensation surveys; Lower Ngariama, survey of northern boundary.

TABLE A.1—SETTLEMENT AND ADJUDICATION RECORDS OFFICE, FIELD HEADQUARTERS

The following new items were received into records:—

Sublocation Topographical Sheets	203
Sublocation Demarcation Sheets	244
Sublocation Cadastral Sheets	529
Negatives	46
Machine Plots	1,069
Diapositives	708
Tracings	Nil
Plane Table Sheets	Nil
Aerial Photographs	26,434
Photo Enlargements	Nil
R.A.F. Films	Nil
Other Aerial Films	25
Miscellaneous	460

Over-counter transactions (issues and returns) during the year:—

Aerial Photographs	29,060
Diapositives	4,631
Machine Plots	3,484
Machine Plots Revision Prints	25
Sublocation Sheets	16,018
Negatives	Nil
Miscellaneous	799

Dyeline Prints	} 1,672 orders involving	17,156 prints
Photostats		5,176 copies
Diapositives	41 " "	856 diapositives
Photograph Enlargements	} 625 " "	2,459 enlargements
Photograph contact prints		22,738 prints
Miscellaneous		7,156 copies

7. TRAINING

The training programme has been carried out by running the standard courses: Basic, Advanced, and Further Advanced Courses for Land Surveyors, and Basic Course for Cartographers. The training instruction at Basic and Advanced level is now wholly undertaken by African Survey Technicians in Survey as well as in Cartography.

The high resignation rate is still a problem: of the 51 recruits at the beginning of the year, 23 resigned.

Departmental Training

The training programme consisted of the following courses:—

(a) *Survey*.—*Basic Course No. 38*: Sixteen students completed the Course (including six from other Departments).

Advanced Course No. 15: Nine students (including three from other Departments).

Further Advanced Course No. 8: Eight students entered the Course, which commenced on 24th October and was due to end on 30th January 1967.

(b) *Cartography*.—*Basic Course No. 20*: Fourteen students completed the Course (including three from other Departments).

Basic Course No. 21: Six students completed this Course.

(c) *Examinations*.—As a result of the Occupational Tests held in 1966:—

Three Survey Assistants, Grade II, became eligible for promotion to Survey Assistants, Grade I, eight Survey Assistants, Grade III, became eligible for promotion to Survey Assistants, Grade II, and ten Junior Survey Assistants became eligible for promotion to Survey Assistants, Grade III.

Two Cartographers, Grade II, became eligible for promotion to Grade I; ten cartographers, Grade III, became eligible for promotion to Grade II; and six Junior Cartographers became eligible for promotion to Grade II.

One Photogrammetrist became eligible for promotion to Grade I, and two to Grade II.

Professional and Overseas Training

Four students were sent to University College to join the B.Sc. (Land Survey) Course; so that, in all, ten students from this Department are following this course now, while one is reading Geography (with specialization in Cartography).

Two were accepted for the B.Sc. Degree Course in Land Surveying by New Brunswick University. Two Photogrammetrists have been accepted for a Diploma Course at I.T.C. Delft, Netherlands, and one Photolithographer has been sent for further training in photography at the Department of Technical Surveys in Ottawa, Canada.

During the year, one cadet Staff Surveyor returned from the one-year Survey Course at the School of Military Survey, Newbury, and one returned from Cambridge University after a one-year post-graduate course in Geodetic and Topographical Survey. One photogrammetrist has returned from Delft after having completed an 18-month Photogrammetric Engineering Diploma Course. In 1967 it is expected that two students will start a Lithography Course in England.

